

Subject:	ACTION: FAA Policy Concerning Use of Dynamically Tested Seats in New or Modified Transport Category Airplanes	Date:	FEB 15 1996
From:	Manager, Transport Airplane Directorate, ANM-100	Reply to Attn. of:	Policy Ltr. TAD
To:	Manager, Aircraft Engineering Division, AIR-100 All Directorate Managers, Aircraft Certification Service All Aircraft Certification Office Managers, Aircraft Certification Service		

This policy letter replaces Policy Letter TAD-95-004.

Part 25 of the Federal Aviation Regulations (FAR) was amended by Amendment 25-64 to include a new § 25.562 entitled "Emergency Landing Dynamic Conditions." This section requires the passenger and crew seats in transport category airplanes to be designed and shown, by test, to protect each occupant during an emergency landing. In addition to showing the structural integrity of the seats and seat attachment structures, the tests must also show that occupants would not be subjected to more than specified upper torso, pelvis and lumbar loads and head injuries. Seats that comply with these criteria are frequently referred to as "16g seats."

Airplanes for which the regulations incorporated by reference (frequently referred to as the "original type certification basis") include § 25.562, and derivatives of those airplanes, must, of course, comply with that section in any event. This policy letter, which supersedes Policy Letter TAD-95-004 dated April 6, 1995, provides guidance concerning the inclusion of § 25.562 in the certification basis for changes to other airplanes.

The Aircraft Certification Service position is that 16g seats save lives and that § 25.562 is one of those rules that manufacturers should be encouraged to incorporate in significant upgrades to their airplanes. Recognizing that airplanes intended for scheduled commercial service under part 121 or part 135, and those not intended for scheduled commercial service, such as business airplanes, are subject to different economic constraints and passenger exposures, the FAA is recommending a higher level of compliance for the airplanes intended for scheduled commercial service.

With this in mind, each Aircraft Certification Office (ACO) presented with an application for a change to an airplane intended for scheduled commercial service should evaluate the project in accordance with this memo. If appropriate, the ACO should propose to the applicant the addition of § 25.562 to the certification basis of the airplane. This will include both seat strength and passenger injury criteria. In the case of airplanes not intended for scheduled commercial service, e.g., business airplanes, the ACO should evaluate the project in accordance with this memorandum. If appropriate, the ACO should propose that the airplane meet the strength requirements defined in § 25.562(a), (b), (c)(7), and (c)(8). Occupant injury criteria should also be applied, except that the head injury criteria need not be applied, provided that the applicant incorporates shoulder harnesses for all seats where head injury due to bulkheads or other structures are a concern. (Note that protection of occupants from injury is required by § 25.785(b), regardless of whether compliance with the occupant injury criteria of § 25.562 is required.)

FAA Order 8110.4A, Section 14(c), gives examples of a number of changes to airplanes which should be evaluated in determining the certification basis. Additional guidance is provided in draft Advisory

Circular (AC) 20-ICPTF, Appendix A. This material identifies the magnitude of a particular change which would be considered substantial, significant, or non-significant. Those projects which include changes which are substantial require new Type Certificates. Several of the changes identified as significant directly involve the cabin, specifically those involving fuselage length, diameter changes, and increase in passenger cabin capacity. These changes should result in a seat upgrade, although full compliance with §25.562 might be waived as discussed below. Other significant changes in isolation should not result in a requirement for 16g seats. However, if a project involves a number of significant changes, these changes should be evaluated in combination. It may well be that the changes, in total, result in sufficient change to the aircraft that production life is significantly extended and it is appropriate to include 16g seats in the requirements. Multiple significant changes should be discussed with the Transport Standards Staff which is charged with maintaining standardization on this issue. Amended Type Certificate changes listed as non-significant and supplemental type certificate changes need not have the seat upgrade.

While AC 20-ICPTF is still in draft form, it is a product of the Aviation Rulemaking Advisory Committee (ARAC) and was therefore developed in a public process. It will be used as guidance material while formal rule making proceeds. After a final rule and AC are issued, this policy will be reviewed. Copies of the pertinent parts of Order 8110.4A and AC 20-ICPTF are attached for your reference.

Applicants for changes not requiring a seat upgrade to airplanes intended for revenue service, or applicants for whose projects the cost of full compliance with §25.562 cannot be justified should be made aware of the modular nature of the 16g seat rule. Where imposition of the entire regulation may be prohibitively expensive, careful application of particular requirements can still yield sizable benefit. At the same time, applicants should be advised that the FAA is proceeding with an amendment to part 121 that would require retroactive installation of 16g seats in existing transport category airplanes used in air carrier service. If this amendment is promulgated, their customers will realize some benefits from the previous installation of seats meeting the strength requirements of § 25.562. It might therefore be in their best interest to install seats which meet at least the strength portion of §25.562. In that regard, the applicants should be encouraged to watch for publication of the new amendment in the Federal Register.

If the above guidance suggests that 16g seats should be required on a specific project, the ACO should make a strong case to the applicant for the inclusion of the later requirements. The Transport Airplane Directorate will be pleased to work with the ACO in development of logical arguments, consulting with other interested parties in the FAA, as necessary. The intent of this exercise is to make the applicant consider the pros and cons of compliance and make an informed decision as to whether or not to volunteer compliance. The FAA believes that manufacturers will opt for the later requirements, in most cases, when they address the long-term benefits of compliance.

Original Signed by
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